

IN THE CLAIMS

1. (Previously Presented) A dispersion optimized fiber having higher spot area comprising a center core region (1), a cladding region (2), a ring core region (3) and an outer glass region (4), wherein the said center core (1) and the said ring core (3) have refractive indices higher than the said outer glass region (4) and the said cladding region (2) has a lower refractive index than the said outer glass region (4), wherein n_1, n_2, n_3 and n_4 represent the refractive index of the said center core region (1) said cladding region (2) said ring core region (3) and said outer glass region (4) respectively and the said refractive indices are constrained by the following equations (1-4) to make the fiber have low dispersion and higher effective area during C and L band transmissions:

$$n_1 > n_3 > n_4 > n_2 \quad (1)$$

$$0.008 > (n_1 - n_4) > 0.007 \quad (2)$$

$$0.0018 > (n_3 - n_4) > 0.0014 \quad (3)$$

$$-0.0005 > (n_2 - n_4) > -0.0007 \quad (4)$$

2. (Previously Presented) The dispersion optimized fiber according to claim 1, wherein said cladding (2) is provided on an outer periphery of the said center core (1), and the said ring core (3) is provided on an outer periphery of the said cladding (2), and the said outer glass region (4) surrounds the said ring core region (3).

3. (Previously Presented) The dispersion optimized fiber according to claim 1, wherein the fiber is insensitive to micro bend loss and has a dispersion slope less than 0.08 ps/nm².

4. (Cancelled)

5. (Previously Presented) The dispersion optimized fiber according to claim 1, wherein the radius of each of the said regions are restricted by the following equations (5-7) :

$$a_1 \text{ is about } 2.7 \mu\text{m} \quad (5)$$

$$a_2 \text{ is about } 6.3 \mu\text{m} \quad (6)$$

$$a_3 \text{ is about } 8.8 \mu\text{m} \quad (7)$$

wherein a_1 , a_2 and a_3 represents radius of the said center core region (1), the said cladding region (2) and the said ring core region (3) respectively.

6. (Previously Presented) The dispersion optimized fiber according to claim 1, wherein the fiber comprises a single cladding region (2) of germanium and fluorine doped material between a germanium doped said center core (1) and said ring core (3), and said outer glass region (4) is provided onto an outer periphery of the germanium doped said ring core (3)

7. (Previously Presented) The dispersion optimized fiber according to claim 1, wherein attenuation at 1550 nm is ≤ 0.22 dB/Km, the dispersion at 1530 to 1565 nm is 2.2 to 6.0 ps/nm km and the dispersion at 1565 to 1625 nm is 4.0 to 11 ps/nm km.

8. (Previously Presented) The dispersion optimized fiber according to claim 1, wherein the dispersion slope is 0.07 ps/nm² km, polarization mode dispersion is ≤ 0.1 ps / km^{0.5} and the mode field diameter is $9.6 \pm 0.4 \mu\text{m}$.

9. (Previously Presented) The dispersion optimized fiber according to claim 1, wherein cable cut off wavelength is ≤ 1280 nm, core concentricity is $\leq 0.6 \mu\text{m}$ and the effective area is 70 micron².

10. (Previously Presented) The dispersion optimized fiber according to claim 1, wherein micro bending is ≤ 0.05 dB at 1550 and 1625 nm, and macro bending is ≤ 0.5 dB at 1550 and 1625 nm.

11. (Previously Presented) The dispersion optimized fiber according to claim 1, wherein the said cladding region (2) is divided into an inner cladding region and an outer cladding region.

12. (Previously Presented) A dispersion optimized fiber comprising a center core (1),

an inner cladding (2) , a ring core (3), an outer cladding (4) and an outer glass region (5), the said center core (1) and the said ring core (3) have refractive indices higher than the said outer glass region (5) , and the said inner cladding region (2) and the said outer cladding region (4) have lower refractive indices than the said outer glass region (5) , wherein n_1 , n_2 , n_3 , n_4 and n_5 represent the refractive indices of the said center core region (1), the said inner cladding region (2), the said ring core region (3), the said outer cladding region (4) and the said outer glass region (5) respectively and are constrained by the following equations (9-12) to make the fiber have low dispersion and higher effective area during C and L band transmissions:

$$n_1 > n_3 > n_5 > n_2 = n_4 \quad (8)$$

$$0.008 > (n_1 - n_5) > 0.007 \quad (9)$$

$$0.0018 > (n_3 - n_5) > 0.0014 \quad (10)$$

$$-0.0005 > (n_2 - n_3) > -0.0007 \quad (11)$$

$$-0.0005 > (n_4 - n_5) > -0.0007 \quad (12)$$

13. (Cancelled)

14. (Previously Presented) The dispersion optimized fiber according to claim 12, wherein the said inner cladding (2) is provided on an outer periphery of the said center core (1), and the said ring core (3) is provided between the said inner cladding (2) and said outer cladding (4), and the said outer glass region (5) surrounds the said outer cladding (4) .

15. (Previously Presented) The dispersion optimized fiber according to claim 12, wherein the fiber is insensitive to micro bend loss and has a dispersion slope less than 0.08 ps/nm² km.

16. (Cancelled)

17. (Previously Presented) The dispersion optimized fiber according to claim 12, wherein the radius of each of the said regions is restricted by the following equations (13-16) :

$$a_1 \text{ is about } 2.7 \mu\text{m} \quad (13)$$

$$a_2 \text{ is about } 6.3 \mu\text{m} \quad (14)$$

$$a_3 \text{ is about } 8.8 \mu\text{m} \quad (15)$$

$$a_4 \text{ is about } 10.8 \mu\text{m} \quad (16)$$

wherein a_1 , a_2 , a_3 and a_4 represent the radius of the said center core region (1), the said inner cladding region (2), the said ring core region (3) and the said outer cladding region (4) respectively.

18. (Previously Presented) The dispersion optimized fiber according to claim 12, wherein said inner and outer cladding regions (2) and (4) are made of germanium and fluorine doped material between a germanium doped center core (1) and ring core (3), and the outer glass region (5) is provided on an outer periphery of the germanium and fluorine doped outer cladding (4).

19. (Previously Presented) The dispersion optimized fiber according to claim 12, wherein attenuation at 1550 nm is ≤ 0.25 dB/km, the dispersion at 1530 to 1565 nm is 1.8 to 6.0 ps/nm km and dispersion at 1565 to 1625 nm is 4.0 to 11 ps/nm km.

20. (Previously Presented) The dispersion optimized fiber according to claim 12, wherein the dispersion slope is 0.07 ps/nm² km, polarization mode dispersion is ≤ 0.1 ps / km^{0.5} and mode field diameter is $9.6 \pm 0.4 \mu\text{m}$.

21. (Previously Presented) The dispersion optimized fiber according to claim 12, wherein cable cut off wavelength is ≤ 1480 nm, core concentricity $\leq 0.6 \mu\text{m}$ and effective area is 70 micron².

22. (Previously Presented) The dispersion optimized fiber according to claim 12, wherein micro bending is ≤ 0.05 dB at 1550 and 1625 nm, macro bending is ≤ 0.5 dB at 1550 and 1625 nm.

23. (New) The dispersion optimized fiber according to claim 11, wherein said inner cladding region is between the center core and the ring core and the outer cladding region is between the ring core and the outer glass region.